

Project 1: Langton's Ant Test Plan

Test Case	Input Values	Driver Functions	Expected Outcomes
Invalid input	< 0, 0, 1, 2	main() - while loop	Continue to ask user for valid input
Choosing quit	3 in menu 1, 2 in menu 2	do-while, menu class	return 0/ program ends
Choosing random #	2 in menu 1	main() if(random)	generate random starting location
Menu loops Play Again	1 in menu 2, 1/2 in menu 1	main() while	Menu pops up until user quits
Play Again - random	1 in menu 2, then 2 in menu 1	main() while	Can go back to either random or not random game
Square board	Same column, same row	Board makeBoard()	create square board with borders around it
Rectangular board	Different col and rows	Board makeBoard()	rectangle board with borders
User specified location	3, 10, 50, 100, 1000	main(), Ant setLocation	starts game at specified location
Turning left	Ant hits black/# tile	Ant moveLeft()	ant turns left and continues
Turning Right	Ant hits white/_ tile	Ant moveRight()	ant turns right and continues
Shift from turning L/R	Ant smoothly turns the other dir	Ant moveAnt()	ant smoothly turns to the other direction
low value	3 (minimum board)	Board makeBoard()	creates 3x3 board with borders
high value	1000	Board makeBoard()	creates 1000x1000 board with borders
5x5	5	Board makeBoard()	creates 5x5 board with borders
starts (3,3)	3	Ant setLocation()	sets ant at (3,3)
9x5	9, 5	Board makeBoard()	creates 9x5 board
starts (5,4)	5, 4	Ant setLocation()	ant starts at (5,4)
moveAnt()	20 moves	Ant moveAnt()	complete 20 moves
Edges	5x9 board, (4,5) start, 10 moves	Ant moveAnt()	complete 10 moves
10x5	10x5, (3,3), 10 moves	Ant moveAnt()	complete 10 moves
5x10	5x10, (3,3), 10 moves	Ant moveAnt()	complete 10 moves

Observed Outcomes

Continue to ask user for valid input
program ends
generated random starting locations
Menu pops up until user quits
Able to continue in random/not random game
created square board with borders around it.
Rectangle board printed with borders
starts game at specified location
ant turns left and continues
ant turns right and continues
ant smoothly turns to the other direction
creates 3x3 board with borders
took awhile and tile size looks off
creates 5x5 board with borders
ant starts at (3,3)
creates 9x5 board
ant starts at (5,4)
seg fault :(
ant on border :(
seg fault :(
completed 10 moves yay!